

AMENDMENTS TO THE SPECIFICATION

[0022] One or more normally closed valves 38 and 40, (FIG. 1) such as heat sensitive pressure barriers 38' and 40' (FIG. 2) comprising a fusible plug 38" and 40" (FIG. 4), are connected between the inside 42 and the outside 44 of the pressure supply. The heat sensitive pressure barriers ~~38 and 40~~ 38' and 40' are fusible plugs 38" and 40" which also form a heat sensitive control for actuating the opening and closing of the valves ~~or barriers~~ 38 and 40 upon a predetermined temperature. The fusible plugs ~~38 and 40~~ 38" and 40" include an eutectic alloy, which melts sharply at a predetermined temperature. Thus, when the area in which the plugs ~~38 and 40~~ 38" and 40" are installed reach a certain temperatures the alloy will melt, creating an air leak from the air supply tank 28. This will be detected by the flow switch 32 which actuates the warning system light 34 which is positioned adjacent the driver of the vehicle to indicate a problem. The heat sensitive pressure barriers ~~38 and 40~~ 38' and 40' are mounted adjacent to the wheel assemblies 11 for measuring the temperature of the wheel assembly 11. In the embodiment shown in FIG. 2 the ~~plugs 38 and 40~~ pressure barriers 38' and 40' extend radially outwardly from the axle 12 and spindle 13 and are positioned adjacent the bearings 20, 22 and brake drum 24. While any type of fusible plug is satisfactory, one sold under the trademark LEEKPRUF sold by the Mueller Refrigeration Company, Inc. is satisfactory. Of course, other types of thermally operated valves may be used for opening the air supply such as a thermally electric switch which operates an electric operated valve. And while it is convenient to use the hollow axle 12 as part of the air supply, other types of air supply tubing could be provided.

[0023] Referring now to FIG. 3, another form of the present invention is shown which is similar to FIG. 2 with the exception that a heat sensitive pressure barrier or fusible plug 38a is positioned in the end plug 37. This provides a simplified manufacturing and construction form, but yet the heat sensitive pressure barrier and control is mounted sufficiently close to ~~the heat assembly 13~~ for measuring the temperature of the wheel hub assemblies 11.

[0024] Referring now to FIG. 4, still another form of the present invention is shown in which instead of the interior 42 of the axle 12 forming a part of the air pressure system includes air supply conduits or tubings 46 and 48 connected between the air line 36 (FIG. 1) and the fusible plugs ~~38 and 40~~ 38" and 40", respectively.

[0026] While the warning system of FIGS. 1-5 provide a stand-alone system for vehicles such as trailer tractors, the warning system is particularly and easily adapted for use with an automatic tire inflation system which already includes an air pressure supply and a warning system measuring the loss of air pressure from the system or tires. Therefore, the combination of the temperature warning system of the present invention with an automatic tire inflation system provides a means of informing the vehicle operator of temperature problems. While the present invention can be used with various types of automatic tire inflation systems, it is useful with the system shown in FIG. 6 and more fully described and illustrated in patent application Serial No. 10/186,951, entitled "Rotary Air Connection With Bearing For Tire Inflation System" which is hereby incorporated by reference. The reference numeral 100 generally indicates the rotary air connection for supplying air from an air supply on a vehicle in an automatic tire inflation system for a vehicle to the rotating tires. The numeral 112 generally indicates one axle or spindle, a hub cap 114 is provided at each end of the axle 112 for retaining lubricant in the wheel bearings and an air supply 116, either directly in the axle 112; or through an interior conduit (not shown) in the inside of the axle 112 supplies air to the rotary air connection through the inside of the axle. A pneumatic rotary union generally indicated by the reference 120 is supported and positioned in the center end of the axle ~~120~~ 112, such as by force fit plug 220, but sealingly engages the interior of the axle 112 by a seal 124 if air is injected directly into the inside of the axle 112. The rotary union 120 has a first stationary part 128 having a passageway 136 therethrough. The passageway 136 is in communication with the air supply 116. A first resilient rotary seal 138 is supported in the passageway 136 and encircles the passageway 136. The union 120 includes a second rotatable part including a tubular member 142 having a first end 144 and a second end 146. The second end 146 is coaxially extendable through and is longitudinally and rotationally movable in the passageway 136 and sealably engages the rotary seal 138 and is in communication with the air supply 116. The first end 144 of the tubular member 142 is sealably connected to the air connection or T-body 152 on the hub ~~cap 144~~ cap 114 through a seal 150. An air connection 152 or T-body is provided on the hub ~~cap 144~~ cap 114 for connection to the tire or tires at the end of the axle 112. The end 144 of the tubular member 142 includes a shoulder which includes a bearing 101. In operation, air 116 is supplied through the stationary part 128 of the rotary union 120. The hub cap 114 rotates with the wheels relative to the tubular member 142. The above-named description is generally

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disclosed in U.S. patent application No. 10/186,951 entitled "Rotary Air Connection With Bearing For Tire Inflation System".